**Distinguishing Features**

- Clinical and Research-Based
- Items are more specific and contextual
- Multiple Perspective Assessment
- Focus on severity as opposed to frequency
- Includes DSM-5 symptoms of ADHD and more

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**Brown’s Model of Executive Functions Impaired in ADHD**

**Executive Functions**

- Organizing, prioritizing, and activating to work
- Focusing, sustaining focus, and shifting focus to tasks
- Regulating attention, sustaining effort, and processing speed
- Managing frustration and modulating emotions
- Utilizing working memory and accessing recall
- Monitoring and self-regulating action

(Brown, Outside the Box: Refining ADD/ADHD 2017, Attention Deficit Disorders, 2005)

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**Available Forms**

- 3 - 7 years Parent, Teacher
- 8 - 12 yrs. Parent, Teacher, Self-Report
- 13 – 18 yrs. Self-Report, Parent (new)
- 19+ years Self-Report

- Forms can be completed at home then reviewed in session, or administered orally by examiner
- Forms can be completed in 10-15 minutes

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**Situational Variability of EF/A impairments are Reflected in the Items**

- Differentiates between tasks, e.g. reading, with strong or minimal interest for the individual
- Inquires about “when writing or talking...”
- Restless, fidgety when have to wait
- Hard for me to stop doing things I like to do, even when I know I should

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**Dimensions for Item Responses**

Most other ADHD or EF rating scales ask frequency of behaviors related to ADHD in terms of “how often?” But “frequency” does not always indicate how much that problem actually impacts functioning.

Brown EF/A scales ask how big a problem?

0. No problem
1. Little problem
2. Medium problem
3. Big problem

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Case Examples Using the New Brown EF/A Scales with Various Age Groups and Comorbidities

Cluster and Composite Scores: T Scores

- T scores indicate the distance of scores from the norm group mean.
- Standard scores with a mean of 50 and a standard deviation (SD) of 10.
- T score of 80 indicates that the individual's score is 3 SDs above the norm group mean, and a T score of 30 is 2 SDs below the mean.
- T scores for the Brown EF/A Scales are non-normalized linear transformations of raw scores, so they preserve the shape of the raw-score distributions, some of which are significantly skewed.

Table 3.3 Cluster and Composite Score Classification

<table>
<thead>
<tr>
<th>T-score range</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>70 and above</td>
<td>Markedly abnormal (very significant problem)</td>
</tr>
<tr>
<td>60-69</td>
<td>Moderately abnormal (significant problem)</td>
</tr>
<tr>
<td>55-59</td>
<td>Somewhat abnormal (possibly significant problem)</td>
</tr>
<tr>
<td>54 and below</td>
<td>Typical (not significant problem)</td>
</tr>
</tbody>
</table>
Meet Harper

5 year old male; Preschooler

Presenting complaint: Removed from preschool due to excessive impulsivity and hyperactivity. Restless, difficulty staying in seat for more than a couple of minutes. Chronic difficulty falling asleep.

Teacher: Feared he may injure himself or others when frustrated.

Mother: Worried he may accidentally hurt his younger sibling.

Summary Score for Harper

<table>
<thead>
<tr>
<th></th>
<th>Activation</th>
<th>Focus</th>
<th>Effort</th>
<th>Emotion</th>
<th>Memory</th>
<th>Action</th>
<th>Total Composite</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent</td>
<td>70</td>
<td>76</td>
<td>71</td>
<td>62</td>
<td>80</td>
<td>73</td>
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<tr>
<td>Teacher</td>
<td>68</td>
<td>66</td>
<td>51</td>
<td>55</td>
<td>55</td>
<td>65</td>
<td>67</td>
</tr>
</tbody>
</table>

Meet Emma

7 year old female; 2nd grader

School (and after care): Behaves reasonably well.

Home: Adopted at birth; biological mother addicted to drugs. Extreme oppositional behavior with frequent tantrums throughout the day. Frustration triggers verbal and physical outbursts toward mother.

Mother: Reacts with anger then takes refuge in the bathroom.

Summary Score for Emma

<table>
<thead>
<tr>
<th></th>
<th>Activation</th>
<th>Focus</th>
<th>Effort</th>
<th>Emotion</th>
<th>Memory</th>
<th>Action</th>
<th>Total Composite</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent</td>
<td>70</td>
<td>64</td>
<td>61</td>
<td>64</td>
<td>55</td>
<td>65</td>
<td>71</td>
</tr>
<tr>
<td>Teacher</td>
<td>69</td>
<td>63</td>
<td>58</td>
<td>50</td>
<td>60</td>
<td>75</td>
<td>67</td>
</tr>
</tbody>
</table>

Meet Sofia

8 year old female; 4th grader

Presenting complaint: Problems with sustaining attention, excessive forgetfulness, and slow task completion.

School: Strong academically in all areas, but dislikes school "because it is so boring."

Home: No issues, but uses somatic complaints to resist going to school.

Self: Does not want others to look at her.
Meet Robbie

10 year old male; 5th grader
Tall and overweight for his age

School: Appears unhappy and preoccupied. Bright, good grades, but doesn't complete written assignments or homework.

Self: Complains of being teased at school because of weight.

Home: Spends hours playing video games; only play dates with younger cousin.

Parents: Worried about his isolation and transition to middle school.

Summary Score for Robbie

- Parent: 64
- Teacher: 71
- Self-Report: 73

<table>
<thead>
<tr>
<th>Subcategory</th>
<th>Parent</th>
<th>Teacher</th>
<th>Self-Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activation</td>
<td>64</td>
<td>67</td>
<td>65</td>
</tr>
<tr>
<td>Focus</td>
<td>66</td>
<td>62</td>
<td>66</td>
</tr>
<tr>
<td>Effort</td>
<td>63</td>
<td>69</td>
<td>64</td>
</tr>
<tr>
<td>Emotion</td>
<td>72</td>
<td>68</td>
<td>63</td>
</tr>
<tr>
<td>Memory</td>
<td>60</td>
<td>61</td>
<td>62</td>
</tr>
<tr>
<td>Action</td>
<td>54</td>
<td>60</td>
<td>59</td>
</tr>
<tr>
<td>Total Score</td>
<td>61</td>
<td>64</td>
<td>60</td>
</tr>
</tbody>
</table>

Meet Alex

13 year old male; 7th grader

Presenting complaint: Trouble transitioning to middle school. Has had difficulty keeping track of assignments in subjects that require memorization (Spanish and Social Studies).

Self: Trouble putting his "good ideas" on paper. He has to get each sentence to sound "just right" before he can write the next sentence.

Summary Score for Alex

- Parent: 72
- Teacher: 62
- Self-Report: 50

<table>
<thead>
<tr>
<th>Subcategory</th>
<th>Parent</th>
<th>Teacher</th>
<th>Self-Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activation</td>
<td>68</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Focus</td>
<td>65</td>
<td>64</td>
<td>65</td>
</tr>
<tr>
<td>Effort</td>
<td>69</td>
<td>69</td>
<td>68</td>
</tr>
<tr>
<td>Emotion</td>
<td>73</td>
<td>74</td>
<td>73</td>
</tr>
<tr>
<td>Memory</td>
<td>64</td>
<td>64</td>
<td>63</td>
</tr>
<tr>
<td>Action</td>
<td>60</td>
<td>60</td>
<td>59</td>
</tr>
<tr>
<td>Total Score</td>
<td>60</td>
<td>64</td>
<td>60</td>
</tr>
</tbody>
</table>

Meet Daniel

16 year old male; 10th grader

Presenting complaint: Requested evaluation because of declining grades despite many hours of study each day. Outstanding athlete, star soccer player.

Self: complains he studies for a test and has answers when quizzed at home before a test, but then can't recall answers the next day in class. He also complains of difficulty in recalling what he has just read, unless it's very interesting.

Summary Score for Daniel

- Parent: 64
- Teacher: 62
- Self-Report: 50

<table>
<thead>
<tr>
<th>Subcategory</th>
<th>Parent</th>
<th>Teacher</th>
<th>Self-Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activation</td>
<td>65</td>
<td>64</td>
<td>60</td>
</tr>
<tr>
<td>Focus</td>
<td>62</td>
<td>62</td>
<td>60</td>
</tr>
<tr>
<td>Effort</td>
<td>64</td>
<td>64</td>
<td>65</td>
</tr>
<tr>
<td>Emotion</td>
<td>64</td>
<td>64</td>
<td>64</td>
</tr>
<tr>
<td>Memory</td>
<td>65</td>
<td>64</td>
<td>65</td>
</tr>
<tr>
<td>Action</td>
<td>60</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Total Score</td>
<td>62</td>
<td>64</td>
<td>61</td>
</tr>
</tbody>
</table>
Meet Kendall

19 year old male, College Freshman
Presenting complaint: Sluggish and depressed in evaluation. Diagnosed with ADHD in 6th grade, responded well to medication, parental support and tutoring.
Home: Parents brought him in for evaluation because he failed all but one of his courses during his first semester.
Self: Stopped taking medication in college but self-medicated with daily marijuana use and periodic drinking.

Summary Score for Kendall

<table>
<thead>
<tr>
<th>Scale</th>
<th>Self-Report</th>
<th>Observer 2</th>
<th>Observer 3</th>
<th>Memory</th>
<th>Attention</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>50</td>
<td>40</td>
<td>50</td>
<td>60</td>
<td>70</td>
</tr>
</tbody>
</table>

Meet Ruby

43 year old female, ICU RN
Presenting complaint: Successful and respected RN for several years. Promoted to Nurse Manager, after which she began to feel overwhelmed by administrative duties.
Home: Her 15 year old daughter had been diagnosed with ADHD one year earlier and responded well to medication, but Ruby had no previous history of ADHD in earlier years.

Summary Score for Ruby

<table>
<thead>
<tr>
<th>Scale</th>
<th>Self-Report</th>
<th>Observer 2</th>
<th>Observer 3</th>
<th>Memory</th>
<th>Attention</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>50</td>
<td>40</td>
<td>50</td>
<td>60</td>
<td>70</td>
</tr>
</tbody>
</table>

ADHD Is a Complex Disorder Often Complicated by Comorbidity

- In 50-70% of cases, ADHD is further complicated by one or more additional psychiatric or learning disorders
- Not only is it possible to have another disorder with ADHD, it is 6 times more likely in lifetime than for those without ADHD

Types of Comorbidity

1. Cross-sectional (within past 6-12 mos)
2. Lifetime (ever within entire life)
3. Dynamic (waxing and waning)
4. Subthreshold (impairing w/o full criteria)

Other Psychiatric Disorders Often Accompany ADHD

70% of children with ADHD had at least one psychiatric disorder in addition to ADHD. (MTA, 1999)

Comorbidity in MTA study

- Did not include learning disorders
- Selected only combined type ADHD
- Included only 7-9 yo children
- Cross sectional (6-12 mos)

Lifetime Psychiatric Disorders in Adolescents (13-18 yrs) (n=10,123)

- Any mood disorder 14.3%
- Any anxiety disorder 31.9%
- Any behavior disorder 19.6%
- Any substance use disorder 11.4%
- Eating Disorders 2.7%
- Any disorder 49.5%

1 class: 58%  2 classes: 24%  3+ classes: 18%

Munkiness, et al, 2010

Psychiatric Comorbidities in adults with ADHD

<table>
<thead>
<tr>
<th></th>
<th>12 mo. %</th>
<th>OR</th>
<th>Lifetime %</th>
<th>OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any mood</td>
<td>25.5</td>
<td>3.5</td>
<td>45.4</td>
<td>3.0</td>
</tr>
<tr>
<td>Any anxiety</td>
<td>47.0</td>
<td>3.4</td>
<td>59.0</td>
<td>3.2</td>
</tr>
<tr>
<td>Any substance</td>
<td>14.7</td>
<td>2.8</td>
<td>35.8</td>
<td>2.8</td>
</tr>
<tr>
<td>Any impulse(^1)</td>
<td>35.0</td>
<td>5.6</td>
<td>69.8</td>
<td>5.9</td>
</tr>
<tr>
<td>Any psychiatric</td>
<td>66.9</td>
<td>4.2</td>
<td>88.6</td>
<td>6.3</td>
</tr>
</tbody>
</table>

\(^1\)Impulse = antisocial pd, ODD, CD, Intermittent explosive disorder, bulimia, gambling

Milt Comorbidity Survey-Replication data presented by R.Kessler at APA, 5/10/04

An Alternative Theory of Comorbidity

- ADHD = developmental impairment of executive functions
- ADHD is not just one disorder among many
- ADHD is a foundational disorder that crosscuts other disorders
- ADHD increases risks of other disorders

Brown, in press

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Anxiety & Depression with ADHD

- Children: 9%-34%
- Adults: 28%-47%

- Depressive: 14%-22%
- Disruptive Mood Regulation: 38%-65%

- Many individuals have more than 1 with ADHD
- Treat most acute problem first (suicidal, veg, panic)
- Medications may worsen or alleviate anxiety/irritability
- Watch "attentional bias" & working memory in both

Bipolar Disorder with ADHD

- Children: 2-21%
- Adults: 3-17%

- Estimated rates vary depending on operational definition, especially re: requiring epidepidicty
- Involves not only ability to regulate emotions, but also to:
  - inhibit and manage actions
  - manage arousal
- If level of arousal is chronically too high or exacerbated by stimulants, guanfacine or mood stabilizers may be preferable.
- If needed, stimulants may be added when mood/arousal is stabilized

Differentiating ADHD & Bipolar Disorder

<table>
<thead>
<tr>
<th>Symptom</th>
<th>ADHD</th>
<th>Bipolar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irritability/Rage</td>
<td>+/-</td>
<td>+++</td>
</tr>
<tr>
<td>Hyperactivity</td>
<td>++</td>
<td>+++</td>
</tr>
<tr>
<td>Inattention</td>
<td>++</td>
<td>+++</td>
</tr>
<tr>
<td>Depression</td>
<td>+/-</td>
<td>+++</td>
</tr>
<tr>
<td>Sub abuse</td>
<td>+</td>
<td>+++</td>
</tr>
<tr>
<td>Psychosis</td>
<td>-</td>
<td>++</td>
</tr>
</tbody>
</table>

Legend:
- Difference
- Absence
- Abnormality
- Emphasis

Oppositional Defiant Disorder with ADHD

- Chronically angry/irritable
- Defiant, headstrong, vindictive
- Incidence 35-50% (usually combined type ADHD)
  - May be quick/impulsive or sulky/sustained
  - Not just feelings, overt verbal/physical actions
  - Onset usually ~12 yrs; Duration ~ 6 yrs. >70% not CD by 18 yrs. Most never de CD
- May respond to stimulants and/or guanfacine

Conduct Disorder with ADHD

- Adolescent lifetime incidence = 6.8%
- Serious delinquent behavior: Physical cruelty to people, theft, confrontation of victim, fire-setting, persistent truancy
- Higher risk of substance use disorder
- Stims and/or guanfacine maybe useful

ADHD + Sleep/Arousal Problems

Falling asleep, awakening, daytime alertness
- May be primary, or secondary to other disorders: MDD, anxiety, substance abuse, sleep apnea
- Late afternoon stimulant dose may cause or help dfa
- Assess sleep schedule and sleep "hygiene" consider anxiety, breathing problems, OSA

dfa: Melatonin, Benadryl, clonidine, Klon dawr: In-bed stim dose 1 hr before get-up; small dose of Daytrana MPH patch during night
**OCD with ADHD**

Normal obsessions/compulsions vs disorder (OCD in 10-30% of ADHD v 4%)

- Obsessions: variable "overfocusing"
- Compulsions: rituals/ perseveration
- Excessive perfectionism, e.g. in writing
- Stims may worsen
- SSRI useful for OCD, not for ADHD
- Stims + SSRI or clomipramine and/or behav tx for OCD

**Substance Use Disorders with ADHD**

Odds ratio for SUD in adults with ADHD

- Nicotine 2.4-2.8
- Alcohol 1.4-1.7
- Marijuana 1.5-2.3
- Cocaine 2.05
- Any SUD 2.6-3.4

ADHD meds alone do not alleviate SUD
Childhood med tx for ADHD may reduce risk
Education & 12 Step Programs
“clean” before med treatment: How long??
“Abstinence” vs “Harm Reduction”
“Rehab vs outpatient relapse prevention

**Autism Spectrum Disorders with ADHD**

Prevalence and Symptoms

- 20-50% of those with ADHD have ASD
- If signif. ADHD sx in ASD, consider ADHD tx
- Significant social impairment (poor in: empathy, non-verbal communication, developing friendships); pragmatic language; and all-absorbing interest

Treatment and Support

- Based on spectrum of sx severity & cognitive abilities
- Need school supports
- Social skills instruction
- Stimulants->ADHD sx (treat cautiously)->ATX
- SSRI Rx OCD, anxiety

**Differential Dx vs Multiple Diagnoses**

- Multiple perspectives on presenting sx and priorities:
  (Pt view? Others’ Views)
- Time frames for presenting sx?
- Aspects of functioning going OK?
- Wide screen for possibly related disorders
- Which meet full dx criteria? Impairment?
- Either/or vs Both and --> Priorities??

**Complicated ADDs**

- Expect complications in >50% cases
- Complicating factors often interact
- Family stress: contributory & reactive
- Individual problems may mask other problems
- Setting may make big difference +/-
- Monitor meds carefully, change/combine
- Attend to health as well as illness
- Improvement is often slow and mixed